

In the Claims:

Claims 1 – 43 (canceled)

44. (currently amended) The composition of claim 48, wherein the silicon carbide has an average particle diameter of about 30 micrometers to about 3.5 millimeters.

45. (currently amended) The composition of claim 48, wherein the silicon carbide is present at about 12% to about 25% by weight.

46. (currently amended) The composition of claim 48, wherein the alumina component is present at about 50% to about 65% by weight.

47. (currently amended) The composition of claim 48, wherein the alumina component comprises a material selected from the group consisting of brown fused alumina, white fused alumina, tabular alumina, calcined alumina, and mixtures thereof.

48. (currently amended) A slurry composition for a mold comprising about 45% to about 80% by weight alumina ~~The composition of claim,~~ wherein the alumina component comprises particles of between about 1.1 to about 3.0 mm in diameter at about 0% to about 10% by weight of the composition, particles of between about 0.2 to about 1.1 mm in diameter at about 40% to about 60% by weight of the composition, and particles of about 0.150 mm in diameter at about 2% to about 10% by weight of the composition;

about 10% to about 30% by weight silicon carbide;

about 10% to about 50% by weight colloidal silica binder;

about 0.01% to about 1% by weight welan gum;

and a setting agent.

49. (currently amended) The composition of claim 48, further comprising about 2% to about 6% by weight free carbon.

50. (previously presented) The composition of claim 49, wherein the free carbon is present in the form of pitch.

51. (currently amended) The composition of claim 48, further comprising 2% to about 5% by weight fumed silica.

52. (currently amended) The composition of claim 48, wherein the setting agent is present at about 0.05% to about 2% by weight.

53. (previously presented) The composition of claim 52, wherein the setting agent is magnesia.

54. (currently amended) The composition of claim 48, further comprising 0.05% to about 0.5% by weight polypropylene fiber.

55. (currently amended) A casting method, the method comprising:
providing a meltable patterned substrate;
coating the substrate with a slurry composition;
allowing the slurry composition to set and form a mold; and
removing the substrate from the mold;
wherein the slurry composition comprises
about 45% to about 80% by weight alumina;
about 10% to about 30% by weight silicon carbide;
about 10% to about 50% by weight colloidal silica; ~~and~~
about 0.01% to about 1% by weight welan gum; and
a setting agent.

56. (previously presented) The method of claim 55, wherein the substrate is coated with the slurry composition by dipping the substrate into the slurry composition.

57. (previously presented) The method of claim 55, wherein the substrate is coated with the slurry composition by spraying the slurry composition onto the substrate.

58. (previously presented) The method of claim 55, wherein the substrate is coated with the slurry composition by brushing the slurry composition onto the substrate.

59. (previously presented) The method of claim 55, wherein the silicon carbide is present at about 15% to about 25% by weight of the slurry composition.

60. (previously presented) The method of claim 55, wherein the alumina component is present at about 50% to about 65% by weight of the slurry composition.

Claim 61 (canceled)

62. (previously presented) The method of claim 55, wherein the slurry composition further comprises about 2% to about 6% by weight free carbon.

Claim 63 (canceled)

64. (previously presented) The method of claim 55, wherein the slurry composition further comprises fumed silica at about 1% to about 5% by weight of the slurry composition.

Claim 65 (canceled)

66. (previously presented) The method of claim 55, wherein the slurry composition further comprises about 0.05% to about 2% by weight setting agent.

Claim 67 (canceled)

68. (previously presented) The method of claim 55, wherein the slurry composition further comprises 0.05% to about 0.5% by weight polypropylene fiber.

69. (previously presented) The method of claim 55, wherein the alumina component comprises particles of between about 1.1 to about 3.0 mm in diameter at about 0% to about 10% by weight of the composition, particles of between about 0.2 to about 1.1 mm in diameter at about 40% to about 60% by weight of the composition, and particles of about 0.150 mm in diameter at about 2% to about 10% by weight of the composition.

70. (currently amended) A casting method, the method comprising:
providing a meltable patterned substrate;
coating the substrate with a slurry composition;
allowing the slurry composition to form a mold; and
removing the substrate from the mold;
wherein the slurry composition comprises

about 45% to about 65% by weight alumina, wherein the alumina component comprises particles of between about 1.1 to about 3.0 mm in diameter at about 0% to about 10% by weight of the composition, particles of between about 0.2 to about 1.1 mm in diameter at about 40% to about 60% by weight of the composition, and particles of about 0.150 mm in diameter at about 2% to about 10% by weight of the composition;

about 10% to about 30% by weight silicon carbide;
about 10% to about 50% by weight colloidal silica; and
about 0.01% to about 1% by weight welan gum; and

a setting agent.

71. (currently amended) A casting method, the method comprising:
providing a meltable patterned substrate;
coating the substrate with a slurry composition;
allowing the slurry composition to form a mold; and
removing the substrate from the mold;
wherein the slurry composition comprises

about 45% to about 65% by weight alumina, wherein the alumina
component comprises particles of between about 1.1 to about 3.0 mm in diameter at
about 0% to about 10% by weight of the composition, particles of between about 0.2 to
about 1.1 mm in diameter at about 40% to about 60% by weight of the composition, and
particles of about 0.150 mm in diameter at about 2% to about 10% by weight of the
composition;

about 10% to about 30% by weight silicon carbide;

about 10% to about 50% by weight colloidal silica;

about 0.01% to about 1% by weight welan gum; and

~~The method of claim 70, further comprising~~ providing a setting agent in
the slurry composition, such that a set time can be controlled by varying the amount of
setting agent.

72. (previously presented) The method of claim 71, wherein the set
time is between 15 minutes and 10 hours.

73. (previously presented) The method of claim 71, wherein the setting
agent is magnesia.

74. (currently amended) The method of claim ~~[[70]]~~ 71, wherein the
substrate is coated with no more than three coats of the slurry composition.

75. (currently amended) The method of claim [[70]] 71, wherein the substrate is coated with no more than two coats of the slurry composition.

76. (currently amended) The method of claim [[70]] 71, wherein the substrate is coated with a single coat of the slurry composition.

Claim 77-78 (canceled)

79. (currently amended) A slurry composition for a mold comprising about 45% to about 80% by weight alumina, wherein the alumina component comprises particles of between about 1.1 to about 3.0 mm in diameter at about 0% to about 10% by weight of the composition, particles of between about 0.2 to about 1.1 mm in diameter at about 40% to about 60% by weight of the composition, and particles of about 0.150 mm in diameter at about 2% to about 10% by weight of the composition;

about 10% to about 30% by weight silicon carbide;

about 10% to about 50% by weight colloidal silica binder; and

about 0.01% to about 1% by weight polysaccharide gum; and

a setting agent.

80. (previously presented) The composition of claim 79, wherein the silicon carbide is present at about 12% to about 25% by weight.

81. (previously presented) The composition of claim 79, wherein the alumina component is present at about 50% to about 65% by weight.

82. (previously presented) The composition of claim 79, further comprising 0.05% to about 0.5% by weight polypropylene fiber.

83. (currently amended) A casting method, the method comprising:
providing a meltable patterned substrate;
coating the substrate with a slurry composition;

allowing the slurry composition to form a mold; and
removing the substrate from the mold;
wherein the slurry composition comprises

about 45% to about 65% by weight alumina, wherein the alumina component comprises particles of between about 1.1 to about 3.0 mm in diameter at about 0% to about 10% by weight of the composition, particles of between about 0.2 to about 1.1 mm in diameter at about 40% to about 60% by weight of the composition, and particles of about 0.150 mm in diameter at about 2% to about 10% by weight of the composition;

about 10% to about 30% by weight silicon carbide;
about 10% to about 50% by weight colloidal silica; and
about 0.01% to about 1% by weight polysaccharide gum; and a setting agent.

84. (currently amended) A casting method, the method comprising:
providing a meltable patterned substrate;
coating the substrate with a slurry composition;
allowing the slurry composition to form a mold; and
removing the substrate from the mold;
wherein the slurry composition comprises

about 45% to about 65% by weight alumina, wherein the alumina component comprises particles of between about 1.1 to about 3.0 mm in diameter at about 0% to about 10% by weight of the composition, particles of between about 0.2 to about 1.1 mm in diameter at about 40% to about 60% by weight of the composition, and particles of about 0.150 mm in diameter at about 2% to about 10% by weight of the composition;

about 10% to about 30% by weight silicon carbide;
about 10% to about 50% by weight colloidal silica;
about 0.01% to about 1% by weight polysaccharide gum; and

~~The method of claim 83, further comprising providing~~ a setting agent in the slurry composition, such that a set time can be controlled by varying the amount of setting agent.

85. (currently amended) The method of claim ~~[[83]]~~ 84, wherein the substrate is coated with a single coat of the slurry composition.

86. (currently amended) The method of claim ~~[[83]]~~ 84, wherein the slurry composition further comprises 0.05% to about 0.5% by weight polypropylene fiber.